## Measuring the groomed shared momentum fraction $(z_g)$ in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV at STAR using a semi-inclusive approach

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Jet quenching is one of the main signals used to investigate the properties of 1 a strongly interacting quark-gluon plasma (QGP). Jet quenching can manifest as 2 more than just energy loss, it can also be seen in the modification of jet substruc-3 ture. This work focuses on measuring the substructure observable  $z_q$ , a byprod-4 uct of softdrop grooming, which probes the physics of the first hard splitting 5 of a hard-scattered parton. This analysis employs a semi-inclusive approach, 6 selecting candidate jets found within the recoil region of a high transverse mo-7 mentum trigger particle. Requiring a high transverse momentum trigger object 8 induces a surface bias on the event selection, causing selected candidate jets 9 in the recoil region to be biased towards having a longer path length within 10 the medium. Jets with a longer path length in the medium are expected to 11 be more quenched and thus are good candidates to search for modification of 12  $z_g$  at RHIC energies. Contribution from combinatorial jets due to the large 13 fluctuating background found in central Au+Au events is subtracted from the 14 signal at the ensemble level, using a mixed events technique. This approach to 15 eliminate combinatorial jet contributions differs from a past measurement of  $z_q$ 16 at STAR that did not find any modification of  $z_q$ , which imposed a hard core 17 requirement for jet candidates, effectively biasing the selection of jets to have a 18 shorter path-length in the QGP medium and reducing the potential signal for 19 modification of  $z_q$ . In this poster we will present the techniques used and the 20 current preliminary results from the ongoing analysis at STAR. 21